

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

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State Office Building, 217 West First Street Madison 1271

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GUY P. JONES
EDITOR

Emergency Treatment of Snake Bites

It would seem probable that the present summer will find more individuals in the mountains and sparsely populated districts of California than have been accustomed to visiting such regions. The forest camps for the unemployed, alone, will take many thousands of young men into the mountainous districts of the State. Because of economic conditions, many families will spend their vacations camping in the open, instead of occupying established camps or summer resorts. In view of these facts, the hazards of exposure to bites from poisonous snakes will be greater than usual. It is believed, therefore, that detailed information relative to the prevention and treatment of snake bites may be of timely interest and of possible value in emergencies.

The only poisonous snakes known in California are the Pacific rattler (*Crotalus oreganus*) and the Texas rattler (*Crotalus atrox*). As compared with many eastern and southern States, where copperheads and moccasins are found, California presents little hazard from snake-bite poisoning. No one who is informed and who acts cautiously need have fear of rattlesnake poisoning. Nevertheless, it is true that from 30 to 50 cases of snake-bite poisoning are reported in California during an average summer season. Few of these result fatally, however. Most cases of snake bite occur during the summer and early fall.

It is dangerous to pick up or reach for an object on the ground unless one is assured that a rattlesnake

is not in the immediate vicinity. A motion toward an unseen snake will cause the reptile—if one be present—to take defensive action immediately and the bite will be inflicted with the speed of lightning. The fact that most snake bites occur on the hands and feet indicates that stepping or falling in the immediate vicinity of an unseen snake and picking up objects under similar conditions constitute hazards in the contraction of snake bites.

The pain immediately following the injection of the poison is most intense. Other symptoms are swelling, weakness, giddiness, difficult breathing, hemorrhage, weak pulse, nausea and vomiting. Pain and swelling are universal symptoms. Weakness and giddiness are also of common occurrence. The other symptoms are more unusual, but difficult breathing is fairly common.

There has been considerable confusion relative to the best procedure to follow if bitten by a rattlesnake. Dr. Dudley Jackson of San Antonio, Texas, and Colonel M. L. Crimmins, U. S. A., retired, have conducted a large number of experiments covering the proper treatment of snake bites and it is probable that their recommendations may be accepted fully. It is doubtful that any other physicians in the country have seen more cases of snake-bite poisoning than these two men. In addition to their experience in the treatment of cases among human beings, they have also conducted extensive experiments upon dogs

in order to formulate definite rules for the first aid treatment of snake bite.

Dr. Jackson recommends that in case of rattlesnake bite a tourniquet be applied to increase the venous congestion and assist in washing out the poison. A cross-cut incision $\frac{1}{4}$ by $\frac{1}{4}$ inches should be made over each fang mark, or, preferably, to connect the two fang punctures. Suction should be applied for at least half an hour. If this is done within an hour from the time a person is bitten, very little additional treatment is necessary. If the swelling should extend, however, it is necessary that more incisions be made at the top of the swelling and suction applied over such incisions. These should be about one-eighth of an inch wide and one-fourth of an inch deep and should not be confined to the immediate site of the injury. The most dangerous fluid is farthest away from the wound. Its absorption must be prevented as it is the source of the systemic poisoning.

Dr. Jackson stresses the importance of colonic irrigations of salt and soda solutions, which should be repeated about every four hours. It is important that medical treatment be secured as soon as possible.

If anticrotalis serum is available, it should be applied. Dr. Jackson states, however, that the serum alone can not be relied upon in the treatment of bites by rattlesnakes. If it is depended upon entirely and suction is not used, fatalities will result. It is more successful to withdraw the poison than it is to allow it to be absorbed and then attempt to neutralize it within the body. Serums should be injected to neutralize the poison that may be present in an uncombined form in the blood. The serum must not be relied upon to neutralize the poison which is contained in the swollen tissues at the site of the bite. The absorption of the poison within this area is constant and the serum can only neutralize the venom that may be circulating in the blood.

Permanganate of potash in a weak solution will not destroy rattlesnake venom even in a test tube and neither strong solutions nor the pure crystals will destroy the venom after it has been injected into an animal's body. It will oxidize venom in a test tube when a 1:300 solution is used but it will not destroy it in the body in the presence of blood and lymph. Even pure crystals of the drug, in Dr. Jackson's experience, show no beneficial results in treatment and it is his opinion that injection of a strong solution of permanganate of potash will only sear the tissues and prevent the normal outpouring of lymph which helps to wash out some of the poison. It is believed, in fact, that the use of permanganate of potash in the treatment of snake bites may do much more harm than good.

It is advisable to release the tourniquet every ten or fifteen minutes for about a minute at a time. Care should be used not to bind the limb too tightly. The sole object of the tourniquet is to delay absorption of the poison into the general circulation, but if it is applied too tightly or is retained for too long a time gangrene may occur, with the resulting destruction of the flesh in the affected area.

Snake venom is harmless in the mouth unless it is inoculated. After applying suction to the wound, however, the saliva should be spat out immediately. Alcohol should not be administered in any form. If stimulation of the heart is necessary, as shown by collapse and weak pulse, a little strong coffee or aromatic spirits of ammonia in the amount of a teaspoonful to a glass of water may be administered. It is essential that the antivenom or serum be of the same type as the snake that bit the patient. Otherwise, its administration is useless.

WHAT NOT TO DO

If bitten by a rattlesnake, don't run or get overheated.

Don't take any alcoholic stimulants because circulation increased by alcohol (or by exercise) serves to distribute the poison much more rapidly through the body.

Don't injure the tissues by injecting permanganate of potash, which is known to be of no value as an antidote.

Don't depend upon home remedies or so-called snake bite cures, for they are of no value.

Don't cauterize the site of the bite with strong acids or caustics.

WHAT TO DO

After making proper incisions at the site of the wound, apply suction and continue for at least half an hour.

Apply a tourniquet above the site of the wound, releasing same every 10 or 15 minutes for about a minute at a time.

If the proper antivenom serum is available, apply it according to directions, but most important of all is to remove as much of the poison as is possible so as to prevent its absorption.

Secure the services of a physician at the earliest possible moment.

Even in the populous districts, the practice of medicine is a lonely-road which winds uphill all the way, and a man may easily go astray and never reach the delectable mountains unless he early finds those shepherd guides of whom Bunyan tell, Knowledge, Experience, Watchful and Sincere.—Osler.

CHANGES PROPOSED IN FEDERAL FOOD AND DRUGS ACT

A redraft of the Federal Food and Drugs Act has been completed and submitted to the Department of Justice for review. Provision is made for the expansion of the act to include cosmetics and to regulate the advertising of foods, drugs and cosmetics, but it does not propose the censorship of advertising in advance of its use. It does provide, however, that false advertising shall be classed as illegal and the responsibility for truthful advertising is placed squarely upon manufacturer and distributor.

Among other provisions in the proposed redraft of the act are the following:

1. Authorization to the Secretary of Agriculture to establish food standards having the force and effect of law.
2. A fully informative label regarding the ingredients of a product.
3. Elimination of slack filling of containers and the use of deceptively shaped packages.
4. Inspection of food and drugs at point of origin.
5. Strengthening the present law relating to poisonous or other added deleterious ingredients which might render food harmful to health.
6. Declaration of the presence of dangerous drugs on the labels of products with possible restriction on the sale of dangerous drugs.
7. Strengthening the present law relative to the sale of drugs which bear false and fraudulent therapeutic claims.
8. Inclusion in the definition of drugs of mechanical devices intended for the treatment of disease.

These indicate the most important of the proposed changes in the act. The general public has been invited by the Food and Drugs Administration of the United States Department of Agriculture to express its opinions relative to these proposed changes and to suggest other changes that might make the Food and Drugs Act more effective in the protection of the general public health.

GROUND SQUIRRELS CARRY PLAGUE

Plague is primarily a disease of rodents, and secondarily and accidentally a disease of man. Man's safety from the disease lies in the exclusion of the rodent and his parasites. This is the basis of all preventive and eradication work. If man can live in rodent-free surroundings he need have no fear of plague, because if there be no rodents there can be no rodent parasites, and for all practical purposes the flea may be considered as the common vector of the disease from rodent to rodent and from rodent to

man. The eradication of bubonic plague therefore means the eradication of rodents.

In America we have two rodents which are comprehended in this problem, the rat and the ground squirrel, and apparently each plays a very distinct role in the propagation and perpetuation of the disease. The rat (*Mus norvegicus*, *M. rattus*, *M. alexandrinus*, and *M. musculus*) is distinctly domestic in its habits, and therefore comes in more or less intimate contact with man. It is also a frequenter of the great highways of the world, traveling long distances in ships and to a limited extent on trains. It is the producer of acute outbreaks, the conduit for the carriage of the virus from its perpetuating reservoir to the body of man. The ground squirrel (*Citellus beechyi*), on the contrary, is not a dweller in human habitations, does not travel except by short migrations, and is an almost negligible factor in the direct transfer of the disease to man. Its great function in the plague scheme is that of a rural reservoir from which from time to time the disease flows over to the suburban rat, thence to his city cousin and thence to man. This condition is not peculiar to America alone, since in China and Thibet the marmota (*Arctomys bobac*) and allied species perform a similar function.

ARMY PREVENTIVE FOR POISON OAK

The following outline of a method to prevent poisoning by poison oak has been issued by the headquarters of the Ninth Corps Area, U. S. A., San Francisco. It is said to have been used successfully by engineering students of the University of California while on excursions into the field.

"First bathe all exposed parts in 10 per cent ammonia water—that is hands, arms, face, neck and ears. When applying to the face hold your breath while you put it on and wipe it off with a towel.

"Then apply liberally to the same area a saturate solution of hyposulphite of soda. Allow this to dry on the skin without wiping. This solution is nothing more or less than the ordinary "hypo" used in developing photographs. It forms a very thin but tough and resilient coating on the skin which prevents the fine oil from the poison oak plant from penetrating into the pores.

"Once infected with poison oak all the remedies on the market are worthless except for relief."

A sick man is not a good farmer nor is he a good judge of hogs, horses or cattle. He must be free from handicaps caused by physical suffering if his mental faculties are to function soundly.—Florida Health Notes.

FIFTH HEALTH CONSERVATION CONTEST ANNOUNCED

The Chamber of Commerce of the United States, through the American Public Health Association, has announced the Fifth Interchamber Health Conservation Contest, the purpose of which is to interest the business man in public health and thereby assist in the intelligent fostering and promotion of sound public health practices. This announcement comes immediately after the end of the 1932 contest and early enrollment will be greatly to the advantage of the cities which may desire to compete.

It is planned to make this year's contest even more comprehensive than previous competitions. Both the National Chamber of Commerce and the American Public Health Association desire to provide considerable assistance to the various cities in collecting the necessary data upon which the grading will be based. Periodical letters in loose-leaf form, to contain clear and concise interpretation—item by item—of the schedule upon which data are recorded will be sent to the health officer, the public health committee, and the chamber of commerce of participating cities.

Dr. Carl E. Buck, Field Director of the American Public Health Association, has requested that all cities which intend to submit schedules in the contest submit an entry form. Participation in previous contests, in itself, does not provide for enrollment in the new contest. All cities must make application upon the official entry form.

MORBIDITY*

Diphtheria

38 cases of diphtheria have been reported, as follows: Oakland 2, Fresno County 1, Los Angeles County 3, Beverly Hills 1, Glendale 1, Long Beach 1, Los Angeles 20, Santa Monica 1, Santa Ana 1, San Diego 1, San Francisco 4, San Luis Obispo County 1, Vallejo 1.

Chickenpox

541 cases of chickenpox have been reported. Those communities reporting 10 or more cases are as follows: Berkeley 14, Oakland 48, Fresno 16, Kern County 16, Bakersfield 21, Los Angeles County 33, Glendale 12, Los Angeles 75, Orange County 18, San Diego 37, San Francisco 83, San Joaquin County 12, Stockton 15.

Measles

1128 cases of measles have been reported. Those

* From reports received on June 5th and 6th for week ending June 3d.

communities reporting 10 or more cases are as follows: Oakland 22, Martinez 18, Bishop 26, Los Angeles County 139, Alhambra 17, Beverly Hills 10, Compton 19, Culver City 24, Glendale 23, Huntington Park 13, Inglewood 11, Long Beach 31, Los Angeles 349, Monrovia 17, Pasadena 23, Pomona 15, San Gabriel 12, Santa Monica 45, Whittier 22, Lynwood 10, South Gate 10, Orange County 15, Orange 25, Santa Ana 14, Placentia 11, Riverside 15, Chino 22, Needles 11, San Bernardino 13, San Diego 20.

Scarlet Fever

132 cases of scarlet fever have been reported. Those communities reporting 10 or more cases are as follows: Los Angeles 48.

Whooping Cough

427 cases of whooping cough have been reported. Those communities reporting 10 or more cases are as follows: Alameda 15, Berkeley 22, Oakland 20, Los Angeles County 22, Los Angeles 55, Pasadena 10, Chowchilla 11, Sacramento 39, San Diego County 18, San Diego 20, San Francisco 33, San Joaquin County 21, San Jose 11.

Smallpox

28 cases of smallpox have been reported, as follows: Oakland 1, Fresno County 1, Los Angeles County 5, Los Angeles 18, Monterey Park 1, Mountain View 1, San Jose 1.

Typhoid Fever

5 cases of typhoid fever have been reported, as follows: Berkeley 1, Los Angeles 2, Riverside County 1, Stanislaus County 1.

Actinomycosis

One case of actinomycosis from Placerville has been reported.

Food Poisoning

2 cases of food poisoning have been reported, as follows: Fresno County 1, San Francisco 1.

Undulant Fever

2 cases of undulant fever have been reported, as follows: Hercules 1, Riverside 1.

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